

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Paten	t Application of	)
Robert M.	Carlson, et al.	) Group Art Unit: 2811
Application	n No.: 10/621,718	) Examiner: Unassigned
Filed: Jul	y 16, 2003	) Confirmation No.: 1570
	AMONDOID-BASED COMPONENTS NANOSCALE CONSTRUCTION	) ) )
	INFORMATION DISCLATE TRANSMITTA	
P.O. Box 1	oner for Patents 1450 , VA 22313-1450	
Sir:		
	closed is a First Information Disclosure sidentified patent application.	Statement and accompanying form PTO-1449 for
[X]	No additional fee for submission of	an IDS is required.
[ ]	The fee of \$180.00 (1806) as set fo	rth in 37 C.F.R. § 1.17(p) is also enclosed.
[ ]	A statement under 37 C.F.R. § 1.9	7(e) is also enclosed.
[ ]	A statement under 37 C.F.R. § 1.9 in 37 C.F.R. § 1.17(p) are also end	7(e), and the fee of \$180.00 (1806) as set forth closed.
[ ]	Charge \$to Deposit	Account No. 02-4800 for the fee due.
[ ]	A check in the amount of \$	is enclosed for the fee due.
1.17 and 1		e any appropriate fees under 37 C.F.R. §§ 1.16, and to credit any overpayment, to Deposit duplicate.
	Respectfull	y submitted,
	Burns, Do	ANE, SWECKER & MATHIS, L.L.P.
Date: <u>A</u> P.O. Box 1	Stephe Regist Redwo (650)	en F. Powell ration No. 43,014 pod Shores, California Office 622-2300



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Robert	M. Carlson, et al.	)	Group Art Unit: 2811
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For:	DIAMONDOID-BASED COMPONENTS	)	
	IN NANOSCALE CONSTRUCTION	)	
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## FIRST INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Sir:

In accordance with the duty of disclosure as set forth in 37 C.F.R. § 1.56, Applicants hereby submit the following information in conformance with 37 C.F.R. §§ 1.97 and 1.98.

Pursuant to 37 C.F.R. § 1.98, a copy of each of the documents cited is enclosed. However, copies of the listed U.S. patents and U.S. patent application publications are not enclosed since it is no longer required according to the July 11, 2003 wavier of the requirement for copies of cited U.S. patents and U.S. patent application publications in national patent applications filed after June 30, 2003 and international applications entering the national stage under 35 U.S.C. § 371 after June 30, 2003.

The documents are being submitted within three (3) months of the filing or entry of the national stage of this application or before the first Office Action on the merits, whichever is later. Since the documents are being filed within the time period set forth in 37 C.F.R. § 1.97(b) no fee or statement is required.

Information Disclosure Statement Application No. 10/621,718 Attorney's Docket No. 005950-832 Page 2

To assist the Examiner, the documents are listed on the attached form PTO-1449. It is respectfully requested that an Examiner-initialed copy of this form be returned to the undersigned.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

Date: April 29, 2004

: Oeen

Stephen F. Powell Registration No. 43,014

Redwood Shores, California Office

(650) 622-2300

P.O. Box 1404 Alexandria, Virginia 22313-1404 Substitute for forms 1449A/PTO & 1449B/PTO

APR 3 0 2004

## FIRST INFORMATION DISCLOSUS STATEMENT BY APPLICANT

APPLICATION NO. ATTORNEY'S DKT NO. 10/621,718 005950-832 APPLICANT Robert M. Carlson, et al. GROUP FILING DATE 2811 July 16, 2003

			U.S. PATENT DOCUMENTS		lecus	e/Public	ation	
Examiner Initials	Document Number	Kind Code (if known)	Name of Patentee or A of Cited Docume			Date 1-DD-Y		
	5,019,660		Chapman et al.		05-28-1991			
	5,053,434		Chapman			10-01-1991		
	6,287,765	B1	Cubicciotti			09-11-2001		
	6,510,359	B1	Merkle et al.			01-21-2003		
	6,531,107	B1	Spencer et al.		03	-11-20	003	
			REIGN PATENT DOCUMENTS	Data of Dation	A:	I Tenne	lotio	
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			ATENT LITERATURE DOCUMEN					
Examiner Initials	Z. ASFARI, et al., "M	Molecular Machine	mal, serial, symposium, catalog, etc.), date publisher, city and/or country where pub es," Journal of Inclusion Phenomena and N Netherlands	olished. Macrocyclic Chemistry," 20	000, pp	. 103-1		
	36, Kluwer Academi	C.R. BRUNDLE, et al., "Atomic Force Microscope," <i>Encyclopedia of Materials Characterization</i> , 1992, p. 703, Butterworth-Heinemann, Stoneham, MA, USA  K.E. DREXLER, "Nanoscale Structural Components," <i>Nanosystems: Molecular Machinery, Manufacturing, and Computation</i>						
	C.R. BRUNDLE, et a	am, MA, USA				Compu		
	C.R. BRUNDLE, et a Heinemann, Stoneha K.E. DREXLER, "Na 1992, pp. 253-273, J	am, MA, USA anoscale Structur John Wiley & Son	al Components," Nanosystems: Molecular	Machinery, Manufacturing	g, and			
	C.R. BRUNDLE, et a Heinemann, Stoneha K.E. DREXLER, "Na 1992, pp. 253-273, U.S. DREXLER, ""N Computation, 1992,	am, MA, USA anoscale Structur John Wiley & Son Mobile Interfaces a pp. 273-319, Joh	al Components," <i>Nanosystems: Molecular</i> s, Inc., New York, NY, USA and Moving Parts," <i>Nanosystems: Molecular</i> Niley & Sons, Inc., New York, NY, USA	Machinery, Manufacturing ar Machinery, Manufacturi	g, and ing, an	d	tatic	
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Substitute for forms 1449A/PTO & 1449B/PTO	ATTORNEY'S DKT No. 005950-832	APPLICATION NO. 10/621,718
FIRST INFORMATION DISCLOSURE	APPLICANT Robert M. Carlson, et al.	
STATEMENT BY APPLICANT	FILING DATE	GROUP
	July 16, 2003	2811

NON PATENT LITERATURE DOCUMENTS		
Include name of author (in CAPITAL LETTERS), title of the article (when appropriate), title of the article (when approp		
	J. VACEK, et al. "A molecular 'Tinkertoy' construction kit: Computer simulation of molecular propellers," New J. Chem., 1997 pp. 1259-1268, Vol. 21, No. 12, CNRS-Gauthier-Villars	
	J. VACEK, et al., "Molelcular dynamics of a grid-mounted molecular dipolar rotor in a rotating electric field," PNAS, May 8, 2001, pp. 5481-5486, Vol., 98, No. 10	

Examiner	Date
Signature	Considered

EXAMINER: Initial if reference considered, whether or not citation is in conformance with M.P.E.P. § 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.